

Application Serial No.: 10/799,460
Attorney Docket No.: 0160115

List of Claims:

Claim 1 (Currently Amended): A method for improving pitch determination comprising:

- obtaining an input voiced speech signal;
- ~~allocating~~ segmenting said input voiced speech signal into a plurality of windows of a fixed sample size for pitch lag determination;
- selecting a target window of said plurality of windows at an original position ~~by sliding the window until a predefined condition is satisfied; and~~
- ~~computing optimum pitch correlation between said the target window and the window at a distant pitch lag~~
- calculating a total energy of said target window by summing an energy of each of a plurality of samples within said target window;
- sliding said target window in a first direction, with respect to said original position, by a sample to redefine said target window;
- computing said total energy of said target window after said sliding;
- repeating said sliding and said computing, for a pre-defined number of samples to obtain a total energy for each of said target windows;
- determining a maximum total energy among every said total energy obtained from said target windows; and
- computing a pitch correlation based on said target window having said maximum total energy.

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Claim 2 (Currently Amended): The method of claim 1, wherein ~~said sliding is with~~
~~respect to time after said repeating and prior to said determining, said method further comprising:~~
sliding said target window in a second direction opposite to said first direction, with
respect to said original position, by a sample to redefine said target window;
computing said total energy of said target window after said sliding said target window in
said second direction; and
repeating said sliding said target window in said second direction and said computing, for
said pre-defined number of samples to obtain a total energy for each of said target windows.

Claims 3-4 (Cancelled)

Claim 5 (Currently Amended): The method of claim 1, wherein said sliding maintains
said sample size for each of said target windows ~~predefined condition is a maximum number of~~
~~samples.~~

Claim 6 (Currently Amended): The method of claim 1, wherein said computing said
total energy includes adding an energy value of an added sample and subtracting an energy value
of a removed sample to said target window as a result of said sliding ~~predefined condition occurs~~
~~when energy of said signal in said target window is maximized.~~

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Claim 7 (Currently Amended): A computer program product comprising:

a computer usable medium having computer readable program code embodied therein for improving pitch determination, said computer readable program code configured to cause a computer to perform:

obtaining an input voiced speech signal;

allocate segmenting said input voiced speech signal into a plurality of windows of a ~~fixed~~ sample size for pitch lag determination;

selecting a target window of said plurality of windows at an original position ~~by sliding the window until a predefined condition is satisfied~~; and

~~compute optimum pitch correlation between said the target window and the window at a distant pitch lag~~

calculating a total energy of said target window by summing an energy of each of a plurality of samples within said target window;

sliding said target window in a first direction, with respect to said original position, by a sample to redefine said target window;

computing said total energy of said target window after said sliding;

repeating said sliding and said computing, for a pre-defined number of samples to obtain a total energy for each of said target windows;

determining a maximum total energy among every said total energy obtained from said target windows; and

computing a pitch correlation based on said target window having said maximum total energy.

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Claim 8 (Currently Amended): The computer program product of claim 7, wherein ~~said sliding is with respect to time after said repeating and prior to said determining, said method~~
further comprising:

sliding said target window in a second direction opposite to said first direction, with
respect to said original position, by a sample to redefine said target window;

computing said total energy of said target window after said sliding said target window in
said second direction; and

repeating said sliding said target window in said second direction and said computing, for
said pre-defined number of samples to obtain a total energy for each of said target windows.

Claims 9-10 (Cancelled)

Claim 11 (Currently Amended): The computer program product of claim 7, wherein
said sliding maintains said sample size for each of said target windows ~~predefined condition is a~~
~~maximum number of samples.~~

Claim 12 (Currently Amended): The computer program product of claim 7, wherein
said computing said total energy includes adding an energy value of an added sample and
subtracting an energy value of a removed sample to said target window as a result of said sliding
~~predefined condition occurs when energy of said signal in said target window is maximized.~~

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Claim 13 (New): A device for improving pitch determination comprising elements for:

- obtaining an input voiced speech signal;
- segmenting said input voiced speech signal into a plurality of windows of a sample size for pitch lag determination;
- selecting a target window of said plurality of windows at an original position;
- calculating a total energy of said target window by summing an energy of each of a plurality of samples within said target window;
- sliding said target window in a first direction, with respect to said original position, by a sample to redefine said target window;
- computing said total energy of said target window after said sliding;
- repeating said sliding and said computing, for a pre-defined number of samples to obtain a total energy for each of said target windows;
- determining a maximum total energy among every said total energy obtained from said target windows; and
- computing a pitch correlation based on said target window having said maximum total energy.

Claim 14 (New): The device of claim 13, wherein after said repeating and prior to said determining, said device further comprising elements for:

- sliding said target window in a second direction opposite to said first direction, with respect to said original position, by a sample to redefine said target window;
- computing said total energy of said target window after said sliding said target window in

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said second direction; and

repeating said sliding said target window in said second direction and said computing, for said pre-defined number of samples to obtain a total energy for each of said target windows.

Claim 15 (New): The device of claim 13, wherein said sliding maintains said sample size for each of said target windows.

Claim 16 (New): The device of claim 13, wherein said computing said total energy includes adding an energy value of an added sample and subtracting an energy value of a removed sample to said target window as a result of said sliding.